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10/624,803	07/22/2003	Toyofumi Hayashi	393032039600	6651

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David L. Fehrman
Morrison & Foerster LLP
35th Floor
555 W. 5th Street
Los Angeles, CA 90013

EXAMINER

LAMB, CHRISTOPHER RAY

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2627

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/624,803	Applicant(s) HAYASHI, TOYOFUMI	
	Examiner CHRISTOPHER R. LAMB	Art Unit 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 June 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10,17 and 19-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10,17 and 19-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 10, 20, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honda et al. (JP 2002-203321; US 2002-0191517 is relied upon as a translation) in view of Izumi et al. (US 5,859,824).

Regarding claim 10:

Honda discloses:

An apparatus (Fig. 6) for recording data and a visible image on an optical disk having at least a substrate surface, a label surface opposite to the substrate surface, a recording face interposed between the substrate surface and the label surface, and a reflection layer disposed under the recording face, the recording face being irradiated by a laser light through the substrate surface to record and reproduce data (paragraphs 30-32), the apparatus comprising:

a light source for generating the laser light (paragraph 38);

an optical pickup having an objective lens, said objective lens movable in a direction of a thickness of the optical disk within a total movable range and condensing the laser light to form a light spot for irradiating the optical disk (a lens is part of the

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optical pickup of Fig. 6: 66; the pickup has a focus control servo as per paragraph 38, so it can move in the claimed direction);

an actuator for moving the objective lens (the focus servo, Fig. 6: 76) around a first base point for focusing the light spot onto the recording face (it can focus on the recording layer for recording data, paragraphs 37-38, so it must be able to focus at this point) and for moving the objective lens around a second base point for focusing the light spot onto a label surface (it can focus on the label surface, paragraph 38, so it must be able to move around this second base point);

a feed means for moving the optical pickup in a radial direction of the optical disk (Fig. 6: 72);

a spindle motor for rotationally driving the optical disk (Fig. 6: 56); and

a host computer for controlling the recording of the data and the visible image (Fig. 6: 46),

wherein the substrate surface of the optical disk faces to the optical pickup when the data is recorded into the recording face (standard for CD-R/RW, and Honda does not change this),

wherein the label surface of the optical disk faces to the optical pickup when the visible image is recorded into the label surface (paragraph 5),

wherein a distance between the objective lens and the optical disk is differentiated between a first case of recording the data on the recording face and a second case of recording the visible image on the label surface (it must be: paragraph 10 discloses that when printing a label, the light is focused on the reflection layer from

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the label side; in order to record as per a standard CD-R/RW, the light must be focused on the reflection layer from the data side; as seen in Fig. 1, there are different distances to the reflection layer from each side, and therefore the lens must be a different distance from the disc for each recording operation),

wherein the apparatus further comprises a focus servomechanism, said focus servomechanism including the actuator and for focusing the laser light onto the optical disk by means of the objective lens (paragraph 38),

wherein the total movable range of the objective lens is set to be equal to or more than a sum of an allowance range and an additional range (not explicitly disclosed, but inherent, as follows), the allowance range including a range set to allow the objective lens to keep a constant distance between the objective lens and the recording face when a level of the optical disk varies in the direction of the thickness (the focus servo keeps the focus during label printing, as per paragraph 10, 37, 38, so it must have at least this range), the additional range being set by dividing a distance from the substrate surface to the recording face of the optical disk by an absolute refraction index of the substrate of the optical disk, so that the actuator can switch the objective lens between the first base point and the second base point (it can focus both during recording and label printing, and as discussed above, since the label and the data recording layer are at different depths inside the disc, the lens must be able to move far enough to allow this: the difference is just the difference in optical path length between the two depths, and that is simply the distance of the substrate surface to the recording face divided by the refractive index when there is no protective layer on the label

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printing side, and Honda discloses there may not be a protective layer in paragraph 65), and

wherein the optical disk does not have a reflection layer under the label surface while the reflection layer is disposed under the recording face (Fig. 19, paragraphs 31, 32: due to the light scattering layer or intermediate layer the reflection layer is not directly under the label surface) and the label surface is applied with a paint which forms the visible image when irradiated with the laser light (Honda does not use the word “paint” but does disclose a material with these properties: e.g., paragraph 30), and therefore a reflected light of the laser light applied to the label surface by the optical pickup is weaker than reflected light of the laser light applied to the recording face (this is the inherent consequence of not having a reflection layer directly under the label surface).

Honda does not disclose:

that a gain of the focus servomechanism is switched between the first case of recording the data on the recording face and the second case of recording the visible image on the label surface;

and wherein the switching of the gain of the focus servomechanism between the first case of recording the data on the recording face and the second case of recording the visible image on the label surface further increases the light receiving gain at the label surface during the second case.

Izumi discloses:

the gain of a focus servomechanism should be switched between the first case of recording data on one recording face and the second case of recording data on the second recording face (column 1, line 66 to column 2, line 7). Izumi discloses that if the gain is not switched, servo control cannot be performed accurately.

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Honda wherein the gain of the focus servomechanism is switched between the first case of recording the data on the recording face and the second case of recording the visible image on the label surface.

The rationale is as follows:

Izumi discloses accurate servo control requires changing the gain between recording faces; the data layer and the label layer of Honda are two different recording faces. Izumi's recording faces are a different sort, but the explanation Izumi provides is equally applicable to Honda.

Honda in view of Izumi discloses:

wherein the switching of the gain of the focus servomechanism between the first case of recording the data on the recording face and the second case of recording the visible image on the label surface further increases the light receiving gain at the label surface during the second case (as noted above, the reflected light from the label surface is weaker and therefore the gain would have to be higher in order to achieve accurate servo control).

Regarding claim 20:

Most elements of this claim have already been discussed in the rejection of claim 10 above.

Honda in view of Izumi discloses:

wherein the laser light is vibrated with a predetermined amplitude in the radial direction of the optical disk at a predetermined cycle of variable cycle while the laser light is applied to a same circumference of the optical disk a plurality of times during recording of the visible image, so that the laser light is applied to different positions along the same circumference, thereby a density of the visible image formed on the laser surface is increased (Honda paragraph 48).

Regarding claim 23:

Honda in view of Izumi discloses:

wherein the feed means moves the optical pickup in the radial direction of the optical disk with a given feed amount when the visible image is recorded on the label surface, the feed amount being greater than a pitch of a pregroove formed on the recording face of the optical disk (paragraphs 47-48; the example feed amount of 100 μm is much larger than the track pitch of a CD-R/RW disc: the CD standard is 1.6 μm).

3. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Honda in view of Izumi as applied to claim 10 above, and further in view of Honda (US 2002/0003760; hereafter Honda '760).

Regarding claim 19:

Honda in view of Izumi discloses:

a laser driver that drives the light source in accordance with the data supplied from the strategy circuit (paragraph 37);

a buffer memory that temporarily stores data for forming a visible image on the label surface (paragraph 41: if the image is converted edited onto the computer and then converted into image data it must be stored somehow); and

a laser irradiation pattern conversion circuit that converts the data stored in the buffer memory into data representing a laser irradiation pattern (paragraph 41), and outputs the data converted by the laser irradiation pattern conversion circuit to the laser driver (paragraph 47).

Honda in view of Izumi does not disclose:

an encoder that EFM-modulates data to be recorded on the recording face;

a strategy circuit that applies time axis correction processing to the data provided from the encoder;

Honda '760 discloses:

an encoder that EFM-modulates data to be recorded on the recording face (paragraph 57);

a strategy circuit that applies time axis correction processing to the data provided from the encoder (paragraph 57);

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Honda in view of Izumi an encoder that EFM-modulates data to be recorded on the recording face; and a strategy circuit that applies time axis correction processing to the data provided from the encoder, as taught by Honda '760.

The rationale is as follows:

Honda in view of Izumi does not disclose many details of the data recording process. However, it is necessary to EFM modulate data in order to record it on the disk and to correct the time axis of the modulated data in order to avoid errors. Honda '760 discloses the details of these elements, and one of ordinary skill could have combined them with predictable results.

4. Claim 17 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honda in view of Izumi and further in view of Katsuyama et al. (US 4,723,234).

Honda in view of Izumi discloses an apparatus for recording data and a visible image on an optical disk: most elements of this claim have been identified in the rejection of claim 10 above.

Honda in view of Izumi does not disclose:

“wherein the host computer checks if the label surface of the optical disk is set to face the optical pickup when the optical disk is set.”

Katsuyama discloses checking to see if the label surface of the optical disk is set to face the optical pickup when the optical disk is set; Katsuyama discloses that this avoids focusing malfunctions (column 1, lines 19-47).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Honda in view of Izumi as taught by Katsuyama to include wherein the host computer checks if the label surface of the optical disk is set to face the optical pickup when the optical disk is set.

The motivation would be to avoid malfunctions, as taught by Katsuyama (Katsuyama is trying to avoid malfunctions while playing the disk, because it cannot be played with the label side the wrong way, but the extension to Honda is obvious: the label cannot be recorded if the label side is set the wrong way).

Regarding claim 24:

All elements positively recited have already been identified with respect to earlier rejections. No further elaboration is necessary.

5. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Honda in view of Izumi, and further in view of Katsuyama as applied to claim 17 above, and further in view of Honda '760.

The motivation for combining the teaching of Honda '760 has already been discussed in the rejection of claim 18. This claim is similarly rejected.

6. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Honda in view of Katsuyama.

Regarding claim 22:

All elements positively recited in the claim have already been individually identified in Honda and Katsuyama in the rejections above; the motivation for combining Honda and Katsuyama was provided in the rejection of claim 17 (the teaching of Izumi, which was relied upon to reject claim 17, is not necessary for this claim and so this claim is rejected as being unpatentable over Honda in view of Katsuyama alone).

Response to Arguments

7. Applicant's arguments filed June 3rd, 2009 have been fully considered but they are not persuasive.

Applicant's argument regarding the claim numbering is persuasive. Although applicant did not list claim 18 in the amendment filed October 23rd, 2008, it was listed as cancelled in an earlier amendment and so applicant is correct that the claims should not have been renumbered.

Regarding claims 10 and 17:

Applicant argues that the phrase "and the label surface is applied with [a] paint which forms the visible image when irradiated with the laser light" renders the claim allowable over Honda in view of Izumi.

Applicant's argument here is that the visible light characteristic changing layer of Honda is made up of discreet geometric shapes and therefore cannot be made of paint.

Although Honda does disclose an embodiment where the visible light characteristic changing layer is formed in minute dots, etc., Honda also discloses embodiments where it is a solid layer. See, for example, paragraphs 30-31. In paragraph 30 the visible light characteristic changing layer is a photosensitive layer; in paragraph 31 Honda discloses that an intermediate layer can be between it and the reflection layer. Then in paragraph 31 Honda goes on to say that "in place of the intermediate layer," the visible light characteristic changing layer could be made up of minute dots, etc.

Therefore although Honda does disclose the elements that applicant bases their argument on, Honda also discloses an embodiment where the visible light characteristic

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changing layer is just a photosensitive layer coating the disc. Although Honda does not use the word "paint" to describe this layer, it appears to be virtually identical to the material disclosed in applicant's own specification and therefore could reasonably be considered to be "paint."

Regarding claim 20:

Applicant appears to be arguing that Honda in view of Izumi does not disclose "wherein the laser light is vibrated with a predetermined amplitude in the radial direction of the optical disc at a predetermined cycle of variable cycle while the laser light is applied to a same circumference of the optical disk a plurality of times during the recording of the visible image, so that the laser light is applied to different positions along the same circumference."

However, this is pretty clearly disclosed in Honda paragraph 48. It's not completely clear from applicant's argument what element they believe is not present in Honda. It may be that applicant is arguing that in Honda the laser light is not "applied to the same circumference...a plurality of times." However, since the light oscillates over the circumference as the disc rotates it is applied to the same circumference a plurality of times.

Regarding the rest of the claims:

Applicant only argues that they are allowable due to their dependence on other claims. Since the earlier claims were not found to be allowable, this argument is not persuasive.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER R. LAMB whose telephone number is (571)272-5264. The examiner can normally be reached on 9:00 AM to 5:30 PM Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Feild can be reached on (571) 272-4090. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Joseph H. Feild/
Supervisory Patent Examiner, Art
Unit 2627

/C. R. L./
Examiner, Art Unit 2627